

# Pre-Board Examination : 2022-23

Class - X

Biology

Time allowed : Two Hours

Maximum Marks : 80

Note : Attempt all questions from Section A. Do only four questions from Section B.

Section - (A)

## Question 1.

Choose the correct answer from the options given below. Do not copy the question but write only the answer : [15]

- (a) The process of fixing the blastocyst to the wall of the uterus is :  
(i) Pregnancy (ii) Fertilisation  
(iii) Gestation (iv) Implantation
- (b) The ground substance of chloroplast is called :  
(i) Thylakoids (ii) Stoma  
(iii) Stroma (iv) Frets
- (c) The highly coiled and condensed chromatin fibres are called :  
(i) Chromatids (ii) Chromatin material  
(iii) Chromosomes (iv) Sister chromatids
- (d) The cell organelle present only in the animal cells to initiate cell division :  
(i) Plastids (ii) Mitochondria  
(iii) Centrosomes (iv) Chromosomes
- (e) Which one of the following is non-biodegradable :  
(i) DDT (ii) Vegetable peel  
(iii) Bark of trees (iv) Card board
- (f) The 9 : 3 : 3 : 1 dihybrid cross is due to :  
(i) Segregation (ii) Crossing over  
(iii) Homologous pairing (iv) Independent assortment
- (g) Water will be absorbed by the root hairs when :  
(i) Concentration of solutes in the cell sap is high  
(ii) Concentration of solutes in the soil is high  
(iii) The plant is rapidly respiring  
(iv) None of the above
- (h) The number of chromosomes in the human sex cell is :  
(i) 22 pairs (ii) 23 (iii) 46 pairs (iv) 46

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- (i) The meiotic cell division occurs in the :
- (i) Somatic cells (ii) Germinal cells  
(iii) Meristematic cells (iv) Permanent cells
- (j) When an individual has both the genes of a contrasting characters, it is said to be :
- (i) Phenotype (ii) Genotype  
(iii) Homozygous (iv) Heterozygous
- (k) Which layer of eye ball is richly supplied with blood vessels for providing nourishment to the organ ?
- (i) Sclerotic layer (ii) Choroid  
(iii) Cornea (iv) Retina
- (l) Fibrinogen is converted into fibrin by :
- (i) Pro-thrombin (ii) Platelets  
(iii) Thrombin (iv) Thrombokinase
- (m) Which one of the following is the phenotypic monohybrid ratio that can be expected in a F<sub>2</sub> generation :
- (i) 3 : 1 (ii) 1 : 2 : 1 (iii) 2 : 2 (iv) 1 : 3
- (n) The first heart sound (Lubb) is produced due to :
- (i) Closure of tricuspid and bicuspid valves  
(ii) Closure of aortic and pulmonary valves  
(iii) Rushing of blood through valves producing turbulence  
(iv) Entry of blood into auricles
- (o) The exudation of plant sap from injured parts is called :
- (i) Polymerisation (ii) Gestation  
(iii) Guttation (iv) Bleeding

**Question 2.**

- (a) **Name the following :** [5]
- (i) The phase where DNA replication takes place.  
(ii) Part of the brain that controls the body temperature.  
(iii) The point of attachment of two chromatids in a chromosome.  
(iv) The ability to perceive depth or the relative distance of the objects due to the simultaneous focussing of both the eyes.  
(v) The thin walled extensions of the outer wall of the epidermal cells of roots present at the root tips.
- (b) **State technical terms for the following :** [5]
- (i) Excess of glucose in the blood.

- (ii) Cell division that does not involve nuclear changes.
- (iii) Transmission of characters from one generation to another.
- (iv) Genetic make-up of an individual.
- (v) Carries impulses towards the brain and the spinal cord.

(c) State the exact location of the following :

[5]

- (i) Site of synthesis of Ethylene
- (ii) Corpus callosum
- (iii) Prostate gland
- (iv) Adrenal gland
- (v) Yellow spot

(d) Match the items in column 1 with that of items in column 2 :

[5]

COLUMN 1	COLUMN 2
(i) Gigantism	(1) Hyper-secretion of adrenaline
(ii) Diabetes mellitus	(2) Hypo-secretion of adrenaline
(iii) Dwarfism	(3) Hyper-secretion of growth hormone
(iv) Diabetes insipidus	(4) Hypo-secretion of growth hormone
(v) Myxoedema	(5) Hypo-secretion of insulin
	(6) Hypo-secretion of ADH
	(7) Hypo-secretion of thyroxine

(e) Identify the odd one out from the following terms and name the category to which others belong :

[5]

- (i) Knee jerk, Closing of the eye, Peristaltic reflex, Learning process
- (ii) GH, ADH, TSH, FSH
- (iii) Goitre, Cretinism, Myxoedema, Diabetes
- (iv) Colour blindness, Albinism, Cancer, Haemophilia
- (v) Sewage, Oil spills, Loud speakers, Detergents

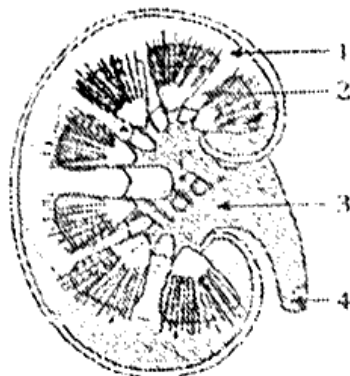
#### Section – (B)

*Attempt any FOUR questions from this section.*

#### Question 3.

3. (a) What is the function of tricuspid valve? [1]
- (b) How are the following adapted to reduce transpiration : [2]
- (i) Nerium
  - (ii) Cacti
- (c) Differentiate between Guttation and Bleeding on the basis of their cause of occurrence. [2]
- (d) Draw a well labelled diagram to show the anaphase stage in a plant cell with six chromosomes. [2]

- (e) Study the given figure of L.S. of Kidney carefully and answer the following questions : [3]



- (i) Label the parts 1 and 3.
- (ii) Why part numbered 2 has a striped appearance ?
- (iii) What is that fluid that passes down the part numbered 4 ? Name the nitrogenous waste present in it.

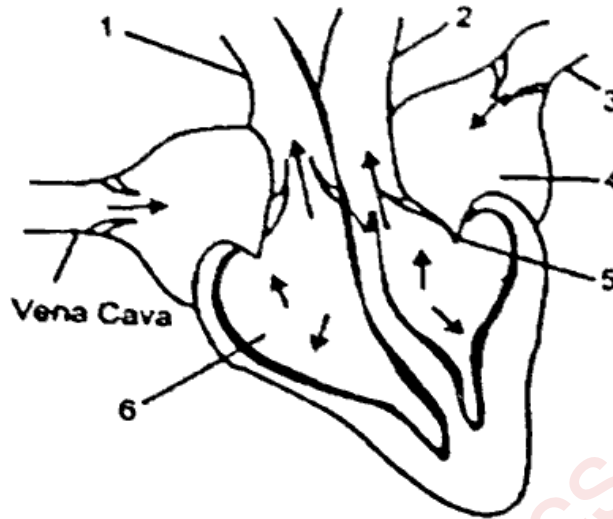
#### Question 4.

- (a) Name the four nitrogenous bases present in a DNA molecule. [1]
- (b) The wooden frames of doors and windows gets jammed during the monsoon season. Explain. [2]
- (c) Expand : [2]
  - (i) TSH
  - (ii) IAA
- (d) Which paper is used to indicate the presence of moisture during transpiration ? Give its colour indication in the presence of moisture. [2]
- (e) A homozygous tall plant (T) bearing red coloured flowers (R) is crossed with a homozygous dwarf plant (t) bearing white flowers (r) : [3]
  - (i) Give the genotype and phenotype of the F1 generation.
  - (ii) Give the possible combinations of the gametes that can be obtained from the F1 hybrid.
  - (iii) Give the di-hybrid ratio and the phenotype of the off-springs of the F2 generation when two plants of the F1 generation above are crossed.

#### Question 5.

- (a) What is Active transport ? [1]
- (b) Which is the growth retarding hormone in plants ? Mention any one of its function, other than the one mentioned here. [2]
- (c) Mention the function of Scrotum and Bulbo-urethral glands in males. [2]
- (d) What happens during : [2]
  - (i) Photolysis of water
  - (ii) Photophosphorylation

(e) Study the given diagram carefully and answer the questions that follow : [3]



- (i) Name the parts marked 4 and 6.
- (ii) Give function of part 5.
- (iii) Identify the phase of the heart with one reason to justify your answer.

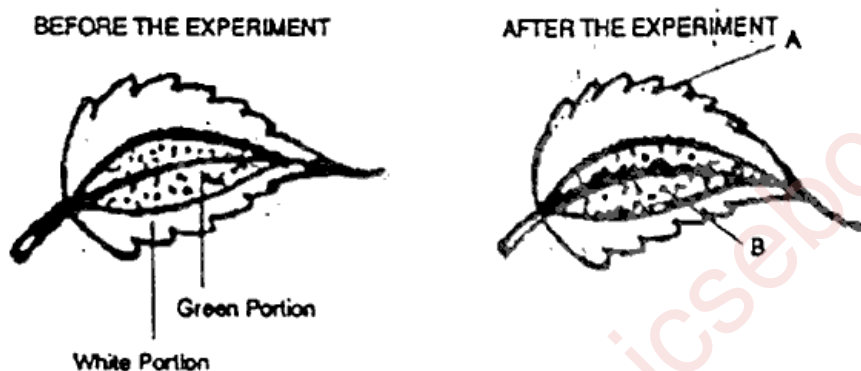
**Question 6.**

- (a) Why do we feel blinded for a short while entering a dark room when coming from the bright light. [1]
- (b) State any two objectives of Clean India Movement. [2]
- (c) Differentiate between the Natality and the Mortality. [2]
- (d) Give the location of the vitreous chamber and also state its function performed. [2]
- (e) Complete the given paragraph with suitable terms : [3]  
 The human female gonads are ovaries. A maturing cell in the ovary is present in a sac of cells called follicle. As the egg grows larger, the follicle enlarges and gets filled with a fluid and now is called [1] ..... follicle. The egg is then released from the ovary. The ovum is picked by the oviducal funnel and fertilization takes place in the oviduct. In about a week, the [2] ..... gets fixed in the endometrium of the uterus and this process is called [3] .....

**Question 7.**

- (a) State the term for the uptake of mineral ions against the concentration gradient. [1]
- (b) How will the following conditions affect transpiration in plants : [2]
  - (i) Midday high temperature
  - (ii) Dim sunlight

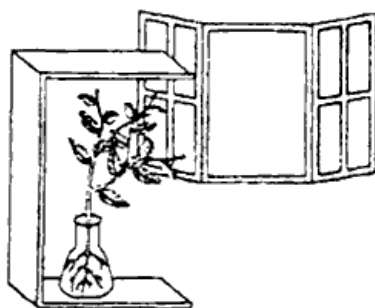
- (c) With the help of a labelled diagram show the structural difference between an artery and a vein. [2]
- (d) Why do the people living in hilly regions usually suffer from simple goitre? [2]
- (e) The diagram given below is an experiment conducted to study a factor responsible for photosynthesis. Observe the diagrams and then answer the following : [3]



- (i) What is the aim of this experiment ?
- (ii) What is the type of leaf used for the experiment ? Give an example.
- (iii) What is the expected result of the starch test on the parts labelled A and B ?

### Question 8.

- (a) What is mutation ? [1]
- (b) Explain why the absence of nucleus and mitochondria proves to be beneficial for the red blood cells ? [2]
- (c) Mention any two reasons for myopia. Also state the lens used for its correction. [2]
- (d) Explain the Luteal phase of menstrual cycle. [2]
- (e) Study the given setup carefully and answer the given questions: [3]



- (i) Explain the tropic movement shown in the figure.
- (ii) Name the stimuli responsible for this movement.
- (iii) Which hormone is responsible for this movement ?